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DESCRIPTIONS OF SOME NEW AMPHIBIANS AND REPTILES FROM GUATEMALA

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Collections made by the author and certain of his colleagues in southern and southeastern Guatemala between 1948 and 1952 contained amphibian and reptilian species previously unknown to science, together with other materials which have been reported previously in American and European museums. More thorough study of these latter reveals that they have been erroneously allocated and must be assigned new names at this time.

I wish to acknowledge financial assistance from the Horace H. Rackham School of Graduate Studies and the Baird Exploration Fund, both of the University of Michigan, which enabled me to carry on my field investigations in Guatemala. I am indebted especially to Dr. Colvin Gibson, formerly of the Onchocerciasis Project of the Panamerican Sanitary Bureau in Guatemala, and to Sr. Antonio Piloña, administrator of Finca La Gloria, Dept. Santa Rosa, Guatemala, for their patience in preserving materials which they turned over to me. Mr. Clifford Pope of the Chicago Natural History Museum has kindly made available to me material collected for his institution by Mr. Luis de la Torre.

While collecting in a hardwood forest on the Soledad Grande that lies between Mataquescuintla and Jalapa in 1952, I encountered in and beneath logs on the wet forest floor a species of *Pseudoeurycea* which appears to be undescribed. It may hereafter be known as

Pseudoeurycea exspectata new species

BP Holotype.—University of Michigan, Museum of Zoology No. 107999. An adult male collected by L. C. Stuart on March 21, 1952.

Type locality.—Broadleaf forest about 3 km. west of the aldea of Miramundo (about 7 air-line kilometers southeast of Jalapa), Department of Jalapa, Guatemala. Elevation, 2525 m.

Paratypes.—University of Michigan, Museum of Zoology, No. 106762 (16), collected with the holotype, and Chicago Natural History Museum Nos. 68730-49 (20), collected by Luis de la Torre at the type locality on April 8, 1952.

Diagnosis.—A *Pseudoeurycea* very probably most closely related to *goebeli* from which it differs in lacking the characteristic light marbling on the undersurface of the tail, in possessing a much lighter upper tail surface and much darker upper surfaces of the arms and legs.

Description of holotype.—Body form robust. Snout blunt and rela-

tively short, in length about equal to the horizontal diameter of the eye and considerably shorter than the upper eyelid. Head two-thirds as wide as long. Below the canthus a depressed region below which the loreal region bulges somewhat.

Lower jaw ovoid in outline. Nostrils small. Naso-labial grooves weakly developed. Labial protuberances only moderately developed. A well-developed gular fold that continues dorsally onto the sides of the head and then curves and continues forward as a weakly defined groove that terminates just anterior to the posterior corner of the eye. An ill-defined vertical groove just behind the angle of the jaws. A definite but non-too-well developed mental gland.

Costal grooves 11 in number between the axilla and groin. Digits long, especially the third, and rounded at the tips; a trace of web on fingers and toes, but two phalanges of finger III and of toes III-IV free of webs. Arms and legs robust. By measurement the adpressed limbs overlap to the extent of two costal interspaces, and their combined lengths therefore greater than the axilla-groin distance. Tail constriction poorly developed.

Vomarine teeth on a well defined ridge, 9-10 in number. Paravomarine teeth separated posteriorly but joined anteriorly to form an irregular mass, which is well separated from the vomarines. Maxillary teeth between 15-20 on each side. Four "bicuspid" premaxillary teeth piercing the lip. Tongue ovoid in outline, filling somewhat more than a third of the width of the lower jaw. Sublingual fold only moderately developed.

Head length to the gular fold 12.9 mm., greatest head width 8.4 mm., head-body length 52.7 mm., tail length 44.7 mm.

In spirits the entire ventral surface, with the exception of the throat and chin, is a dark, gun-metal blue. This color extends up onto the dorsum where it shades gradually into a dark, reddish brown which is lightest on the tail and darkest and most obscure on the surface of the head. The palmar surfaces of both hands and feet and the chin and throat are bluish white with a faint reddish tinge. A somewhat lighter inguinal gland is indicated.

Variation.—The individuals of the paratypic series are like the holotype in all essential details. The costal grooves are eleven in number though in several specimens there is an indication of a twelfth. The vomarine teeth vary 9-13. In all adult specimens the tail is either slightly shorter than or slightly longer than the head-body length. The tail (not regenerated) of the holotype is considerably shorter than in other specimens of comparable size. In all, the head length varies from 22 percent to 25 percent of the head-body length, and the head width is from 65 to 71 percent of the head length. The legs of adults may overlap to the extent of the length of two costal interspaces or may fail to overlap by one and one-half costal interspaces. The most variable feature of the paratypic series is in coloration. The reddish dorsum is often a most conspicuous feature and the underside of the tail may occasionally be similarly colored but is never marbled as in *goebeli*. In several of the very largest specimens traces of a series of irregular light spots may be noted in a ventro-lateral position. The chin and throat in a few individuals is spotted with white.

Discussion.—The relationship of this new form to *goebeli* is fairly

obvious. Only *rex* is sufficiently close geographically to suggest other relationships. But in possessing the long legs of *goebeli*, in approximating it in maximum adult size and in its vertical distribution it is almost identical with *goebeli*. It may be noted at this time that the ten largest specimens of this new form range in total length from 102.7 to 131.2 mm. as compared with 108 to 123 mm. in *goebeli* and but 85 to 99 mm. for *rex* (data for the last two from Schmidt).[1] In vertical range *goebeli* extends 2400 to 3200 m., whereas *rex* occurs only at elevations above 3100 m. There is reason to suspect that *exspectata* is restricted to the southeastern highlands of Guatemala, an area in which no elevations about 2600 m. are encountered.

Taylor[2] and Baird[3] both concur in assigning *rex* and *goebeli* to the *leprosa* group and *exspectata* would by *fiat* have to be similarly allocated. It is worthy of note, however, that both with regard to the character of the "bicuspid" premaxillary teeth in the males and on geographic grounds, *rex* and *exspectata* (I have not had access to males of *goebeli*) would seem to fit into the *gadovii-smithi* groups. Baird[4] is extremely vague as to the significance of the "bicuspid" tooth type. It may well be of no phylogenetic significance. At the same time it is conceivable that evolution in the genus has been centripidal. Thus the *leprosa* group may have been split into two divisions, one more northern in Mexico and the other in Guatemala, by the more specialized and presumedly more recently evolved *gadovii* group which centers somewhat more south in Mexico than the *leprosa* series. *Pseudoeurycea barbouri* (Schmidt) from Honduras is too poorly known to be fit into any phylogentic scheme at this time.

Ecology.—The University of Michigan series were all secured in late March from either within or from beneath damp, rotten logs in a broadleaf forest. Those taken from within logs were occupying the burrows of wood-boring beetles, the surrounding wood temperature of which varied 11°-13.5° C. At that time conditions in the Soledad Grande region were extremely dry. In addition to gravid females, a clutch of two dozen eggs guarded by a female was also secured. The embryos in these eggs were well developed with well formed legs. They will be treated in greater detail in a forthcoming paper. Juveniles of the year were also taken at this time, the smallest measuring but 34 mm. total length.

On April 8 of the same year Mr. Luis de la Torre returned to the type locality and secured a portion of the paratypic series. His collection also contains gravid females, a clutch of eggs and juveniles, the smallest of which has a total length of 33 mm. In the same vicinity he also secured a few specimens from bromeliads well above the ground. To my knowledge this is, with the exception of a single specimen secured by Schmidt,[5] the first Guatemalan *Pseudoeurycea* to have been taken in the bromeliad environment.

Extending from Guerrero in Mexico southward into Costa Rica is a

[1]Schmidt, Karl P., Guatemalan Salamanders of the Genus Oedipus, Zool. Ser. Field Mus. Nat. Hist., 20, 17, 1937: 165.
[2]Taylor, Edward H., The Genera of Plethodontid Salamanders in Mexico, Pt. 1. Univ. Kansas Sci. Bull., 30, 1, 12, 1944: 209.
[3]Baird, Irwin L., An Anatomical Study of Certain Salamanders of the Genus Pseudoeurycea. Univ. Kansas Sci. Bull., 34, 1, 6, 1951: 258.
[4]*op. cit.*
[5]*op. cit.*: 164.

complex of toads which has been known as *Bufo coccifer*. Described originally from Costa Rica by Cope,[6] the species has since been reported from Honduras by Carr,[7] from Mexico by Smith and Taylor,[8] and I found it the common toad on the southeastern highlands of Guatemala.

This complex may be characterized as a group of small to moderately sized toads, with a full, well-developed complement of cranial crests, a naked tympanum, possessed of relatively small ovoid parotoids, with the dorsum covered with a moderate number of small warts which are conspicuously concentrated in all forms in the scapular region, and lacking any distinctive characters on the hands and feet. Superficially it resembles the *valliceps* complex from which it is readily distinguishable through the absence of a well developed lateral line of warts.

Examination of specimens from various parts of its range reveals that "*coccifer*" as now known must be broken down into a chain of species or at least subspecies. The Mexican population is readily distinguished from the Costa Rican population through its greater degree of dorsal wartiness, its flattened rather than spinous warts, and by its somewhat narrowed head. Inasmuch as most of the Mexican material is in the hands of Dr. Edward Taylor of Kansas University, I leave the status of that population up to him. Whether or not the Costa Rican, Honduranian, and Guatemalan populations are conspecific is questionable. There seem to be some slight differences between the first and last (I have not had access to Honduranian specimens), but until material of comparable preservation is at hand it seems best to regard these populations as the same.

Some years passed Schmidt and Stuart[9] called attention to a peculiar toad from central Guatemala. Owing to scanty material at that time, they applied Werner's name *microtus* to the specimens rather than affixing a new name to it. It may be noted that Werner's description is sufficiently vague as to be applicable to practically any moderately sized toad in northern Central America. Reexamination of the type may reveal that Werner was naming the Honduranian and Guatemalan populations of "*coccifer.*" In 1952 I collected in several localities in southeastern and central Guatemala specimens of toads which are undoubtedly conspecific with the beast mentioned by Schmidt and Stuart. A comparison of this new material with Guatemalan, Mexican, and Costa Rican "*coccifer*" reveals that a new name for this population is indicated. I accordingly dedicate it to my good friend Señor Jorge A. Ibarra, Director of the Museo Nacional de Historia Natural de Guatemala. It may be known as

Bufo ibarrai new species

Holotype.—University of Michigan, Museum of Zoology No. 108000. An adult male collected by L. C. Stuart on the night of June 19, 1952.

Type locality.—Oak-pine zone at Aserradero San Lorenzo (about 12

[6]Cope, E. D., Fourth Contribution to the Herpetology of Tropical America. Proc. Acad. Nat. Sci. Philadelphia, 1866: 130.

[7]Carr, Archie F, Jr., Outline for a Classification of Animal Habitats in Honduras. Bull. Amer. Mus. Nat. Hist., 94, 1950: 580.

[8]Smith, Hobart M and Edward H. Taylor, An Annotated Checklist and Key to the Amphibia of Mexico. Bull. U. S. Nat. Mus., 194, 1948: 44.

[9]Schmidt, Karl P. and L. C. Stuart, The Herpetological Fauna of the Salama Basin, Baja Verapaz, Guatemala. Zool. Ser. Field Mus. Nat. Hist., 24, 1941: 238.

air-line kilometers slightly east of north of Jalapa), Department of Jalapa, Guatemala. Elevation, 1725 m.

Paratypes.—University of Michigan, Museum of Zoology Nos. 106806 (10), 106807 (3) collected in the same vicinity as the holotype by L. C. Stuart on the nights of June 17-19. Chicago Natural History Museum No. 68711 collected "4 mi. northeast of Volcán de Jumay" (this is in the immediate vicinity of the type locality) by Luis de la Torre in late May, 1952.

Diagnosis.—A *Bufo* of the *coccifer* complex distinguished from the typical form by its much greater size, comparatively larger tympanum, stronger development of all cranial crests, less warty dorsum, and smooth rather than tuberculate skin between the dorsal crests in the interocular region. Comparative measurements of the two are almost identical.

Description of holotype.—A toad of moderate size. Head to angle of jaws slightly less than one-third of the head-body length, head length 75 percent of head width. Head with a full complement of crests. Cranial crests commencing at the level of the nostrils, flaring outwards posteriorly, their inner margins forming an almost straight line; conspicuously thicken at the junction of the preorbital crest which extends downward to below the center of the eye; continuing posteriorly without sharp angles, curving gently behind the eye and again curving backwards to join the parotoid glands. Well developed parietal crests branching from the supraorbital portion of the main head crest anterior to the posterior margin of the eyelid and forming a 45 degree angle with the mid-dorsal axis of the body. Postorbital crests of development about equal to that of the preorbitals and like them extending down to below the center of the eye. Supratympanic crests greatly thickened and strongly overhanging the tympanum. A low, flat rostral ridge. Area around nostrils swollen. Loreal region concave. A horny ridge above horny margin of upper lip extending from the angle of the jaws to the loreal region. Snout shorter than length of upper eyelid. Parotoids small but well formed, ovoid in outline, and their greatest length either slightly longer than or slightly shorter than the upper eyelid. Tympanum conspicuous, its vertical diameter slightly more than half the length of the upper eyelid. A pair of slightly flaring, moderately developed ridges in the scapular region. Dorsum covered with small, scattered, conical but rounded (not spinous) warts; these increasing in size and in numbers laterally and shading gradually into the granules of the ventrum. Warts on limbs more spinose in character; those on the upper surfaces of the fore-arms and lower legs most conspicuous.

Tongue about twice as long as its greatest width, rounded behind, and free over half its length. Vocal slits conspicuous. Choanae well forward, almost ovoid in outline, the distance between them somewhat more than three times their greatest diameter.

Outer metacarpal tubercle about twice the size of the inner; neither more than moderately developed. First finger longer than second; third by far the longest. Palmar tubercles conical; subarticular tubercles either double or greatly broadened. Breeding pads on fingers I and II.

Legs (coccyx to base of inner metatarsal tubercle) 87 percent of head-body length. Toes III and V about one-third webbed on the sides towards the fourth toe. Second toe about one-half webbed on the third

toe side. Inner metatarsal tubercle conspicuous, horny, somewhat flattened, conical in outline, and about one-quarter of its distal end free. Outer metatarsal tubercle conspicuous but small and low.

The ground color (following preservation in formalin and spirits) is a pale yellowish gray mid-dorsally. This color becomes more and more yellow laterally and shades gradually into the pale yellow of the ventrum. The arms and legs are similarly somewhat grayer above and more yellowish below. The tops of the cranial crests are light brown. Between them in the nasal, supraorbital, and parietal regions are irregular markings of brown outlined with black. A pair of slightly darker spots are barely visible on the inner side of the upper eyelids. A narrow light line extends from the rostrum to the anus; this line broadened and diffused in the scapular region. On either side of this in the scapular and midbody region are irregular, black-outlined, brown markings which become faded posteriorly. Parotoids a somewhat brighter yellow than body. The upper surfaces of both arms and legs with indistinct grayish spots or crossbars, one such marking on the lower and upper arms and upper legs and two on the lower legs. Undersurfaces pale yellow with very indistinct grayish reticulations on the chest and belly.

Head-body length, 75.5 mm.; head length (snout to jaw angle), 22.0 mm.; head-width (at jaw angles), 28.8 mm.; upper eyelid, 9.8 mm.; eye to tip of snout, 9.5 mm.; tympanum, 5.0 mm.; parotoid (average), 9.4 mm.; hind leg (coccyx to base of inner metatarsal tubercle), 65.5 mm.

Variation.—Among the ten paratypic males one finds no morphological variation of significance. The length of the hind leg varies from 79 to 90 percent of the head-body length, the head length from 75 to 85 percent of the head-width, and the head length from 29 to 31 percent of the head-body length. The only conspicuous variation is in the coloration, and this is a variant of quantity rather than quality, for the dark spotting and reticulations of the dorsum and ventrum respectively may be greatly intensified but are never more widespread than in the holotype. These males vary in head-body length from 67.0 mm. to 80.3 mm.

The four females in the paratypic series show little or no morphological differences from the males with the possible exception of comparatively slightly smaller parotoids. Their warts, too, are more spinose than those of the males and these are neither so large nor so numerous on the flanks as in the males. The main variant is in pattern. Though essentially that of the males, the dark spotting on the dorsum is somewhat more widely distributed and breaks off rather sharply dorso-laterally to leave a more or less immaculate light stripe that commences at the parotoids and extends posteriorly, diffusing in the groin region. This is bordered below by a dark band that is fairly regular above but irregular below. The females are somewhat larger than the males, varying from 80 to 88 mm. in head-body length.

Discussion.—The most conspicuous difference between this form and *coccifer* is in size. Of eleven breeding males in the type series the smallest has a heady-body length of 67.0 mm., whereas the largest breeding male of a series of *coccifer* from Esquipulas, Guatemala measured but 52.8 mm. The mean head-body length of the males in the type series is roughly 75 mm. as compared to roughly 48 mm. in the Esqui-

pulas series (59 specimens). The females are comparably larger than the males in both forms.

Aside from size, *coccifer* in over-all appearance is more spiney than *ibarrai* and its warts are more spinose. Furthermore there is less concentration of the warts on the flanks in *coccifer* though the upper surfaces of both arms and legs are more warty in this latter. In color *coccifer* is immaculate below and somewhat more intensely spotted above. Mertens[10] presents an excellent photograph of the dorsal coloration typical of the northern *coccifer*.

With regard to size, there is some reason to believe that this character may not be genetic. A fine series of specimens like typical *coccifer* in all respects was secured at Jalapa at almost the same time the type series of *ibarrai* was taken at San Lorenzo. Though the two localities are but 12 kilometers apart, Jalapa lies some 300 m. below San Lorenzo. The Jalapa series of breeding males averaged some 10 mm. greater head-body length than the *coccifer* series from Esquipulas which lies 500 m. below Jalapa. Thus the size differences could conceivably be environmental. At this time I am unwilling to pass judgement on the Jalapa series. It is possible that they may prove to represent an intergrading population between *coccifer* and *ibarrai*.

Distribution.—This new species appears to be restricted to higher levels of the oak-pine belt of southeastern and central Guatemala. Aside from the type series I have a single specimen from 1500 m. on the south slopes of the Sierra de las Minas (Finca Bucaral) and another from the Salamá Basin which has been noted previously. These, it will be noted, are not designated paratypes. Though *coccifer* enters this same belt in Guatemala, it does not appear to ascend to such high elevations and may indeed prove to be restricted to the southeast with *ibarrai* replacing it in central Guatemala. It may be noted that between El Salvador and the Isthmus of Tehuantepec, despite fairly intensive collection, no representative of the *coccifer* series is known from the Pacific versant. It is indicated, therefore, that the complex may have geographic continuity or near-continuity through the subhumid Motagua, Negro, and Grijalva valleys of central Guatemala and Chiapas, a pattern that is known to obtain in certain other reptilian and amphibian species (especially *Hypopachus championi* and *Hypopachus maculatus* and in *Sceloporus squamosus* and *Sceloporus carinatus*).

While collecting in the oak-pine zone in the vicinity of Jalapa in 1952, I secured a medium-sized species of *Hyla* belonging to the *eximia* group. A study of this material reveals that it warrants description as a new species. For my colleague, Dr. Charles F. Walker of the Museum of Zoology, University of Michigan, who has been more than patient in aiding me with problems on amphibiology, I name this frog.

Hyla walkeri new species

Holotype.—Museum of Zoology, University of Michigan, No. 106817. An adult male collected in a marshy pasture at Aserradero San Lorenzo (12 kilometers [straight line] slightly east of north of Jalapa), Depart-

[10]Mertens, Robert, Die Amphibien und Reptilien von El Salvador. Abhhand. Seneken. Naturforsch. Gesell., 487: 1952: taf. 10, fig. 52.

ment of Jalapa, Guatemala at 1725 meters. Collector, L. C. Stuart; date, June 18, 1952.

Paratypes.—Museum of Zoology, University of Michigan, Nos. 106815-16, 106818-19; data as for holotype.

Diagnosis.—A medium-sized *Hyla* belonging to the *eximia* division of the *eximia* group (posterior surface of thighs not marbled or spotted). Readily differentiated from *Hyla arboricola* Taylor, its closest relative, by its much shorter legs, more pointed snout, and more underslung lower jaw.

Description of holotype.—Head (tip of snout to posterior edge of exoccipital) slightly shorter than broad (at jaw angles). Eye longer than its distance from the nostril but considerably shorter than its distance from the tip of the snout. Tympanum a little less than two-thirds as broad as eye. Snout narrowly rounded. Surface of head slightly convex. Nostrils elevated. Canthus marked by a rounded but well-defined edge. Sides of snout descending obtusely from surface of head. Loreal region depressed. Upper eyelids moderately prominent but their limits ill-defined. Snout rounded in lateral profile and distinctly overhanging lower jaw. A moderately-developed supratympanic fold commencing at the posterior corner of eye and continuing back to above arm insertions. Skin on the upper surface of the head, arms, legs and body smooth.

Lower jaw somewhat more broadly rounded than upper jaw. Skin of chin and throat smooth. Vocal sack large, extending posteriorly to the level of the arm insertions. Belly coarsely granular, this granulation extending up onto the sides of the body in diminishing intensity and merging gradually with the smooth skin of the dorsum.

Tongue ovoid; about one-third free; slightly notched behind. Vomarine teeth 5/6; situated on two ridges somewhat longer than broad and lying between the choanae. Vormarine ridges extending backward obliquely and smaller than the choanae. Vocal slits large and situated laterally just in front of the angle of the jaws.

Arms moderately stout. Fingers with but a mere trace of a web. Subarticular tubercles prominent. Discs on fingers II, III, and IV about three-quarters as broad as the tympanum. Discs of thumbs greatly reduced and not apparent as such. Skin of undersurfaces of the arms more wrinkled than granular. An ill-defined row of small tubercles along the lower posterior edge of the fore-arm. A well-defined dorsal wrist-fold.

Legs short and moderately stout, the heel reaching only to the tympanum when legs are adpressed. Skin of the underside and lower posterior surface of the thigh granular; this granulation diminishing in intensity distally and disappearing before reaching the knee. A well developed heel-fold. A prominant tarsal fold. A very small outer metatarsal tubercle. Web between toes V and IV incised to level of base of antipenultimate phalanx of V and joining toe at that point though a dermal fringe extends from there almost to the base of the terminal pad; outer side of toe IV webbed to base of preantipenultimate phalanx; inner side webbed to distal end of basal phalanx. Web between toes IV and III incised to level slightly below distal end of basal phalanx and attached to outer side of toe III at the distal end of basal phalanx.

Web between toes III and II incised to level half way down the basal phalanx of toe II; attached to inner side of toe III at distal end of basal phalanx and carried to terminal disc as a dermal fringe on outer side of toe II. A mere trace of a web between toes II and I and again carried distally as a dermal fringe to the terminal disc on the inner side of toe I. Terminal discs of all toes smaller than those on fingers II, III, and IV. Subarticular tubercles all well developed.

Ground color (in spirits) of upper surfaces of head, body, arms and legs a bluish to purplish gray. On either side in scapular region the ground color enclosed by a narrow black line to give impression of two dark elongate spots. Similar elongate spots, somewhat darker, in pelvic region and on either side of these, smaller, rounded spots. Two dark small round spots above anal region.

On sides of head a narrow black line commences anterior to the nostril on either side, passes through the nostril and continues to the eye. At the posterior corner of the eye this dark line commences again but is considerably broader. It continues backwards above the arm insertion and then diffuses rapidly towards the ventral surface leaving only its upper portion distinct and carrying backwards to the groin. Behind the eye this lateral dark streak is bordered above by a narrow, diffused, light line that becomes more evident posteriorly on the body. Below the dark streak on the head to the level of the arm insertions the ground color is greatly lightened to produce a broad, light border down to the edge of the lip which is again very dark.

The ground color of the upper surfaces of the arms is bordered laterally by a diffused light line, below which lies a narrow dark line that diffuses ventrally. A narrow dark band marks the wrist-fold. Upper surfaces of the hands darkened by a concentration of melanophores, a condition that extends out onto the fingers, especially III and IV.

The dorsal ground color is restricted to the central portion of the upper surfaces of the thighs. This is bordered both anteriorly and posteriorly by a dark line that diffuses ventrally and is most distinct above the knees. The lower limits of the dorsal ground color are marked by a diffused dark line posteriorly and by a light line, below which lies a diffused dark line, anteriorly. An inconspicuous, irregular, dark spot on the dorsal surface of the lower leg in the mid-leg region. Heel black with a light proximal border. The feet and toes like the hands and fingers are peppered with black.

In life the species is extremely brightly colored. I quote the following from my field notes which was a composite description of the type series:

"Above a bright, penetrating, very green green which shows through the dark gray dorsal spots. . . . This same shade also on the upper surfaces of the fore and upper arms, thighs, lower legs and narrowly on the tarsus. Starting at nostril and continuing backwards through eye and across tympanum a very black line that becomes increasingly lighter posteriorly and which on sides of the body becomes gray, then dirty green, and eventually a bright yellow smear in the groin region. This line bordered above by a lighter green than that of dorsum, giving appearance of a light upper border. Below diffusing gradually into white of belly. Upper lip below dark band a yellowish green. On outer sides of arms the green of the upper surfaces bordered by a diffused

gray stripe. A somewhat more distinct narrow, dark gray stripe borders the green upper surface of the knee, lower leg and tarsus on the outer side. Some gray flecks around anus. A narrow dark line around wrist and ankle. Upper surfaces of metatarsus and toes as well as sides and lower surfaces of thighs a bright yellowish orange. Under surfaces of lower legs somewhat lighter, as are the under surfaces of the fore-arms and hands. Vocal sac as bright yellowish orange. Chest and belly white.''

Comments.—In all essential details the four paratypes are in accord with the holotype. Table 1 presents the more important measurements for the type of series.

TABLE 1

Essential Measurements for the Type Series of *Hyla walkeri* in Millimeters

Number	Head-body to anus	Anus to heel	Foot	Hd. lg. / Hd. wd.	Eye	Tym-panum	Snout	Adpressed L Heel to
106815	31.1	25.4	22.0	1.0—	2.8	1.7	3.9	Posterior ed
106816	31.8	27.4	22.5	1.0—	3.1	1.6	4.1	Tympanum
106817	34.4	26.1	23.0	1.0—	3.2	2.0	4.5	Tympanum
106818	30.5	25.0	21.2	1.0—	2.9	1.4	4.1	Posterior ed
106819	31.8	27.0	22.5	1.0—	3.0	1.6	4.5	Posterior ed

This new species is placed in the *eximia* division of the *eximia* group on the basis of the coloration of the posterior surface of the thighs which is neither marbled nor spotted as is true of the *euphorbeacea* division. This latter division is represented, incidentally, in Guatemala by *Hyla bocourti* (Mocquard) which is known only from the oak-pine zone of Alta Verapaz.

The species is obviously most closely related to *Hyla arboricola* Taylor. From *lafrantzi* and *wrightorum* it is readily differentiated on the basis of its much shorter leg, from *regilla* by its smooth dorsum, from *cardenasi* by its much longer snout, from *eximia* by its shorter leg, somewhat less extensive webbing between the toes, and less bold lateral pattern, and from *arboricola* by the characters noted in the diagnosis.

The seven hundred kilometer gap between *bocourti* and this new form and the next closest member of the *eximia* group (*euphorbeacea* in Oaxaca, Mexico) poses a nice geographic problem. It is not improbable, however, that future collecting in the oak-pine zone of central Chiapas and of northwestern Guatemala will reveal a greater continuity in the range of the group.

This little species was heard calling on only two occasions, the nights of June 17 and 18, 1952 at San Lorenzo. Both nights were overcast and cold, with a fine drizzle falling and a heavy mist settling in the depressions. On the same nights *Bufo* and *Hypopachus* were calling in small numbers and a few ranas were abroad. The species was heard at only one site, a damp, sloping pasture in which the water table lay at the surface and water was draining as a sheet into a nearby gully. The pasture was extremely hummocky as a result of cattle pasturing in

the area. The specimens were located amongst the short, new grass on the hummocks and because of their color were difficult to locate. Though a number were heard calling, their calls were widely spaced and the species was extremely wary, ceasing to call entirely as their territories were approached. The call was a moderate pitched, fairly rapid, "a-a-a-a", reminding one of a small boy imitating the firing of a tommy-gun. There were always four notes to a single call with the accent falling on the final "a." The single calls were repeated three or four times running and were followed by a four to five minute pause between outbursts.

Recent investigations in Central America have revealed what may prove to be a very distinct group of hylids which are probably stream forms and which are known from Guerrero, Mexico to Costa Rica. Some of these, the males at least, possess thickened lateral or lateroventral glands of varying degrees of conspicuousness. These species have been included in the genus *Ptychohyla* Taylor. At present *P. adipoventris* and *P. bogerti* are assigned to the genus. If these glands are of phylogenetic significance, then *Hyla spinipollex* Schmidt, *Hyla euthysanota* Kellogg, and very probably *Hyla rozellae* Taylor must also be assigned to *Ptychohyla.* I further suspect that such species as *Hyla uranachroa* Cope, *Hyla ruficolis* Taylor, *Hyla alleei* Taylor and *Hyla salvadorensis* Mertens should be similarly allocated.

Several difficulties arise in connection with the establishment of the genus *Ptychohyla* as a valid entity. First, most of the species of this group are rare in collections especially insofar as individuals secured throughout the year are concerned. Second, from what material is available, it appears that only males possess the lateral glands. Third, horny adspersities are present on the thumbs of some of the species and all indications point to these being seasonal as well as being confined to adult males. And fourth, the presence of adspersities in breeding males only, suggests that the glands are similarly seasonal as well as adult character. *Hyla rozellae* has heretofore been known from only an adult (?) male and female and juveniles and the adult (?) male is without glands. I have recently had access to specimens which are unquestionably *rozellae* and the males possess the glands. Until more is known of these several features the status of *Ptychohyla* cannot be settled, but because we are dealing with a group of obviously closely related species, it seems proper to retain the name if for no other purpose than convenience. I have previously taken this same stand in regard to the snake genus *Trimetopon.*[11]

Regardless of the status of the genus I have for some years been aware of a diminutive Guatemalan frog with lateral glands. These are in the collections of the Museum of Zoology and the Chicago Natural History Museum and form a part of the magnificent collections assembled from south Guatemala in 1934 by Mr. K. P. Schmidt of the latter institution and by his brother, the late Franklin J. W. Schmidt. Two more recent specimens in the Museum of Zoology collections were secured by Mr. H. O. Wagner in Chiapas, Mexico. Study of this series reveals that they are new to science and I accordingly name them for their first collectors,

[11]Stuart, L. C. A New Trimetopon (Ophidia) from Guatemala. Proc. Biol. Soc. Washington, 62, 1949: 165.

Ptychohyla schmidtorum new species

Holotype.—Chicago Natural History Museum No. 20755. An adult male collected at Finca El Porvenir (17 air-line kilometers due west of San Marcos), Department of San Marcos, Guatemala. Elevation, unknown but El Porvenir terrain includes elevations ranging from about 500 m. to possibly 2000 m. Collector, K. P. Schmidt; date, March 2, 1934. Between March 1 and March 3 of 1934 Schmidt is known to have worked at elevations ranging from 1700 m. to about 2200 m.[12]

Paratypes.—Chicago Natural History Museum Nos. 20755, data as of holotype and 20761, collected at the type locality on February 26, 1934 by K. P. Schmidt; Museum of Zoology, University of Michigan No. 80918, data as of holotype and 105429-30 collected by H. O. Wagner during April, 1950 at Finca Irlanda, Chis., Mexico. All are males.

Diagnosis.—A small *Ptychohyla* distinguished from other members of the genus and from species not now assigned to the genus but which I suspect should be so allocated by the close proximity of the lateroventral-ventral glands, by the absence of a tarsal fold, and by the less extensive webbing of the fingers. The most conspicuous gross feature of the beast is the coloration of the head (to be described below) which gives the appearance of a distinct white spot below the eye.

Description of holotype.—Head (tip of snout to posterior edge of exoccipital) slightly longer than broad (at jaw angles). Eye longer than its distance from the nostril but shorter than its distance from tip of snout. Distance between nostrils slightly less than their distance from eye. Tympanum slightly less than one-half the length of the eye and almost equal to its distance from posterior margin of eye. Surface of head flat, canthus rounded and sides of snout descending obtusely to mouth. Nostrils slightly elevated. Snout rounded. Upper eyelids about as wide as the distance between them. Supratympanic fold definite only over tympanum, flattening out and merging with skin in back of eye and posteriorly towards arm insertions.

Lower jaw broadly rounded, and conspicuously overhung by upper jaw. No evidence of external vocal sack.

Skin of dorsal surfaces of head and body smooth. Commencing about half way down on the sides and extending well onto the belly on either side is a large smooth gland which appears like thickened skin. These glands extend from the axilla to the groin. On the chest they almost touch mid-ventrally and are barely separated by slightly granular skin. Posteriorly on the belly they diverge and are separated by a triangular patch of normal, coarsely granular skin that continues granular between the legs and onto the under surfaces of the thighs almost to the knee. The skin anterior to the gland on the throat and chin is finely granular. The anterior margins of the glands are sharply delimited and give the appearance of fold that extends laterally to and around the posterior portions of the arm insertions.

Arms normally developed. A slight thickening of the skin on the under surface of the fore-arm produces a barely visible ridge (somewhat more evident in some of the paratypes). A wrist fold on the dorsal

[12]Elevations given for type localities of *Oedipus franklini* and *O. flavimembris* respectively in Schmidt, K. P. Guatemalan Salamanders of the Genus Oedipus. Zool. Ser. Field Mus. Nat. Hist., 20, 1936: 158-59.

surface of fore-arm. Fingers in order of length III-IV-II-I. A definite but very slight web between the fingers. Disc on third finger equal to tympanum, that on thumb very small. Palmar tubercles not particularly well developed. Subarticular tubercle on finger IV bifed.

Legs relatively short; when adpressed the heel reaching only to the anterior border of the eye. No evidence of a tarsal fold either inner or outer. Inner metatarsal tubercle ovoid in outline, conspicuous but not overly prominent. Outer tubercle small, circular in outline and low. Web between toes I and II narrow, incised to base of ultimate phalanx of I and attached to II at base of ultimate phalanx though extended somewhat more distally as a narrow fringe. Between toes II and III web incised to level of base of ultimate phalanx of II and attached to near distal end of ultimate phalanx of II and about half way up same phalanx of III. Web between toes III and IV incised to base of penultimate phalanx of toe IV and attached to mid-point of ultimate phalanx of toe III and base of same phalanx on toe IV. Web between toes IV and V incised to level of base of penultimate phalanx of IV and attached to IV at base of ultimate phalanx and to V near the distal end of ultimate phalanx. Discs on toes smaller than those of the fingers.

Vomarine prominences ovoid, between choanae, and diagonally placed, directed medially and posteriorly. These prominances somewhat larger than the choanae and separated from each other and from the choanae by spaces equal to about one-half their diameter. Vomarine teeth 3/3. Tongue almost circular and about filling the lower jaw. Vocal slits large and situated fairly well forward so as to be readily visible. Aside from a compound fracture of the left mandible and a simple fracture of the left upper leg, the holotype is in excellent condition and well preserved.

Ground color (in spirits) of surface and sides of head and back light brown with a purplish tinge in nasal and canthal regions and on upper eyelids. This ground color becoming somewhat lighter posteriorly and delimited laterally by the upper margin of the lateral glands. Anteriorly the boundary between the brown of the dorsum and the white of the ventrum continues forward from the edge of the glands above the arm insertions, below the tympanum and extends as a narrow margin along the edge of the upper lip. A relatively broad streak of white commences at the angles of the jaws and extends forward and upward to and including the lower eye-lid, giving the gross appearance of a light spot below the eye. A few scattered, small, white flecks on the dorsum similar to those often found in *Agalychnis*. The distal upper surface of the upper arm and the entire lower arm brown above somewhat lighter than the dorsum and fading gradually distally from the elbow out onto the fingers. A light elbow spot. Upper surfaces of the legs and feet similarly colored, the brown most intense on the lower legs. A narrow light streak across heel. Undersurfaces almost entirely immaculate white. One or two flecks of light brown on the lateral glands (see notes on paratypes below), and some scattered brown pepperings on the undersurfaces of the foot and toes.

Variation.—The paratypic series is like the holotype in all essential details. The only variation of any significance is in color. In some specimens the dorsum has a mottled appearance and the legs, especially

the lower, may be similarly mottled and much darker above than in the holotype. In several of the specimens there is a broken and somewhat diffused dark band on the lateral gland extending from axilla to groin. This gives the appearance of a light lateral stripe between the lower brown line and the ground color of the dorsum but at best it is an inconspicuous feature. Significant measurements of the type series are given in Table 2.

TABLE 2

Essential Measurements for the Type Series of *Ptychohyla schmidtorum* in Millimeters

Number	Head-to anus	Anus to heel	Foot	Hd. lg. / Hd. wd.	Eye	Tympanum	Snout
20755 (type)	29.5	25.5	19.6	1.8	3.5	1.6	4.8
20755	29.0	27.0	19.1	0.99	3.7	1.5	----
20761	29.0	27.0	20.1	0.98	3.8	1.6	----
80918	29.0	25.5	19.6	0.95	3.4	1.5*	4.4
105429	32.0	27.0	20.0	1.0	4.0	1.8	5.1
105430	31.0	26.5	19.9	1.0	3.8	1.7	5.1

Comments.—On the basis of our present knowledge it is difficult to say to what known species *schmidtorum* is most closely related. The lack of any trace of a tarsal fold is unique in the group. Most of the northern species that possess lateral glands have a certain amount of pigmentation in the same, as compared with the almost immaculate condition in this new form. Furthermore the northern forms tend to be more uniform in their dorsal and lateral head coloration, lacking the very distinctive light border and spot on the sides of the head. Though the southern species such as *uranachroa* or *alleei* are not known to possess glands in the males, they do possess the light lip and eye spot. I am inclined to believe that the relatives of *schmidtorum* should be sought in that direction.

Some years ago I collected on the eastern slopes of the Sierra de los Cuchumatanes a specimen of *Pituophis* which did not fit exactly the descriptions of *P. deppei lineaticollis* to which it theoretically should have been assigned. Since that time further specimens have been secured in the vicinity of Yepocapa, and examination reveals that these agree in all features with the Cuchumatán specimen upon which I have already commented.[13] In recognizing this population as distinct, I name if for my good friend Dr. Colvin Gibson who, while associated with the Panamerican Sanitary Bureau at their onchocerciasis station in Yepocapa, turned over to me a most interesting collection of amphibians and reptiles secured in that region. It may be known as

Pituophis deppei gibsoni new subspecies

Holotype.—Museum of Zoology, University of Michigan, No. 107060. A half-grown male from the Gibson Collection, secured in the vicinity

[13]Stuart, L. C. Comments on the Herpetofauna of the Sierra de los Cuchumatanes of Guatemala. Occ. Papers Mus. Zool., Univ. Michigan, 471, 1943: 23.

of Yepocapa, Department of Chimaltenango, Guatemala at 1430 meters on May 16, 1950.

Paratypes.—Museum of Zoology, University of Michigan, Nos. 107062-63, Finca El Tesoro (3 kilometers [straight line] southeast of Acatenango), Chimaltenango at 2125 meters elevation; No. 107064, Río Sobolopop (8 kilometers [straight line] west of Patzún), Chimaltenango at 2175 meters elevation; No. 107061, Río Los Positos (5.5 kilometers [straight line] northeast of Yepocapa), Chimaltenango at 1525 meters elevation ;No. 107381, Finca Recreo (4.5 kilometers [straight line] southwest of Yepocapa), Chimaltenango at 1280 meters.

Diagnosis.—A *Pituophis* of the *deppei* group readily distinguishable from its obviously closest relative *lineaticollis* through the breaking up of the paravertebral stripes on the anterior part of the body to form a series of paired, elongate spots.

Description of holotype.—A full complement of normal colubrid head shields. Rostral broader than high and curving well back onto the anterior surface of the snout; two internasals and two prefrontals, the suture between the former only about one-half as long as that between the latter; frontal about three-fourths as broad as long, its length equal to its distance from the tip of the snout; a large supraocular on either side, each as long as the frontal; two parietals as long as the frontal. Nostril between two nasals; a small loreal which is only about half as large as the preocular; two postoculars; anterior temporals 2/3; the posterior temporals poorly differentiated. Supralabials seven, the third and fourth entering the orbit; eleven infralabials, four on one side and five on the other in contact with the anterior chin shields; posterior chin shields but poorly differentiated from the adjacent gular scales. Dorsal scale formula 25-27-25-23-21; the six lowermost scale rows on either side unkeeled anteriorly, and the two lowermost alone unkeeled at the level of the anus. Abdominals, 237; subcaudals, 64; preanal undivided. Total length, 860 mm.; tail length, 41 mm.

Ground color of entire dorsum a light brown (*stratum corneum* in place). The top of the head unmarked; the ground color of the dorsum becoming light on the sides of the head and taking on a pinkish tinge on the supralabials. On the nape two parallel black spots, eight scales in length and four in width, are placed in a paravertebral position. These followed by a gap some two scales in length and then another pair of long, narrow spots of unequal length. In all, three such pairs of spots are present on the anterior part of the body. These are followed by two more pairs of similar spots, each pair being joined by a narrow dorsal saddle. There is thus produced the two paravertebral lines so conspicuous in *lineaticollis* with the exception that in *gibsoni* these lines are broken. These broken stripes extend to about the level of the forty-seventh abdominal. Following these are twenty-three dorsal blotches with light centers. Anteriorly these blotches consist of a pair of spots in the paravertebral region, connected by a dark saddle. They differ from the spots considered as a part of the broken paravertebral lines in possessing light centers. Posteriorly the dorsal blotches become more and more single in appearance and about two thirds of the way back on the body take on the appearance of a single middorsal saddle. The light centers of the blotches are gradually enlarged posteriorly. On the

tail are nine, black dorsal saddles that extend across the dorsum almost from ventral to ventral. Anteriorly on the tail these black saddles have a barely visible light center which disappears posteriorly.

Laterally on the anterior part of the body are a series of elongate blotches similar to the paravertebral blotches and alternating with the latter. They occupy the second, third, fourth, fifth and sixth or only the third to fifth scale rows. Posteriorly these blotches become more rounded and light centered. Towards the back third of the body their form becomes obscure and they gradually change into small dark spots. On the tail they are evident only anteriorly. Ventrally on the posterior part of the body are small irregular dark spots which occupy the edges of the ventral scutes and which alternate with the lateral spots. On the anterior portion of the ventrum the spots become increasingly obscure while on the tail they degenerate into occasional dark marginings on some of the subcaudals. Irregular dark spots occur also in the center of some of the abdominal scutes on the posterior half of the body.

Discussion.—Though there is considerable variation in the details of pattern in the paratypic series, the essential elements in the holotype are present in all. Variation in other characters are given in Table 3.

Aside from the breaking up of the paravertebral stripes on the fore part of the body, only minor differences separate *lineaticollis* from *gibsoni*. The former has a slightly higher average number of abdominals, subcaudals and dorsal spots than has *gibsoni*. Table 4 compares these features in the two forms.

In addition to the paratypes, all of which stem from the immediate vicinity of the type locality, this new form is known also from Nebaj, El Quiche (Museum of Zoology, University of Michigan No. 89202, noted in Table 3). What is undoubtedly this same race has been reportedly from Volcán Agua, Sacatepequez at 1800 meters by Slevin[14] and from Dueñas, Sacatepequez by Boulenger[15] and Gunther.[16] In the case of this latter specimen there is some question as to the nature of the neck stripes. Günther describes and figures them as continuous as in typical *lineaticollis*, whereas Boulenger describes them as being broken as in *gibsoni*. Dr. Parker has informed me (*in litt.*), however, that its pattern is that of *gibsoni*.

Though intergrades between *gibsoni* and other members of the *deppei* group are unknown at this time, I consider the form so close to *lineaticollis* that integration between the two may be anticipated. At present the closest known record of *lineaticollis* to *gibsoni* is one recorded by Smith and Taylor[17] from San Cristóbal, in Chiapas, México. I have not examined this specimen and it may, indeed, prove to be *gibsoni* or an intergrade between that and *lineaticollis*.

Several years ago my good friend Sr. Antonio Piloña, administrator of Finca La Gloria in the *oriente* of Guatemala, sent me a small snake the lower jaw of which had been somewhat mangled, but which in other

[14]Slevin, Joseph R. Notes on a Collection of Amphibians and Reptiles from Guatemala. I. Snakes. Proc. California Acad. Sci., 23 (26), 1939: 400.

[15]Boulenger, George A. Catalogue of Snakes in the British Museum (Natural History). London, British Museum, II, 1894: 64-65.

[16]Gunther, Albert C. L. G. Reptilia and Batrachia. *In* Biologia Centrali-Americ an. 1885-1902: 124, Pl. 47.

[17]Smith, Hobart M. and Taylor, Edward H. An Annotated Checklist and Key to the Snakes of Mexico. U. S. Nat. Mus., Bull. 187, 1945: 108.

TABLE 3

Variation in Major Morphological Features in available material of *Pituophis deppei gibsoni* excepting the holotype.

Number	Sex	Labials		Oculars		Anterior Temporals	Dorsals	Abdominals	Subcaudals	Blotches	
		Supra	Infra	Pre	Post					Body	Tail
107062	♂	8	12	1	2	3	27-25-23-21	234	65	26	9
107381	♂	8	11	1	2/3	2/3	25-27-25-23-20	234	61	22	7
89202	♀	8	10/11	1	2	3	25-27-25-23-21	241	57	22	7
107064	♀	6/7	11	1	2	3	27-25-27-25-23-21	246	----	23	--
107063	♀	8	11/12	1	2	4	25-27-25-23-21	242	57	25	7
107061	♀	8	11/13	1	2	4	27-29-27-25-23-21	246	63	27	9

Table 4

Comparison of the Number of Abdominals, Subcaudals, and Dorsal Saddles in *Pituophis deppei lineaticollis* and *Pituophis deppei gibsoni*

Species	Sex	Abdominals	Subcaudals	Total Ventrals	Body Saddles	Tail Saddles	Total Saddles
lineaticollis	♂♂ (7)	231-244 (238)	63-71 (66.5)	297-312 (305)	25-33 (28)	10-13 (11.5)	35-45 (35.5)
	♀♀ (2)	245-249 (247)	61-62 (61.5)	307-310 (308.5)	29-34 (31.5)	9-11 (10)	38-45 (41.5)
gibsoni	♂♂ (3)	234-237 (235)	61-65 (63)	295-301 (297.5)	22-26 (24)	7-10 (9)	29-35 (32)
	♀♀ (4)	241-246 (244)	57-63 (59)	298-309 (302)	22-27 (24)	7-9 (8)	29-36 (32)

Numbers in parentheses after sexes indicate number of specimens; in all other cases, means.
Data for *lineaticollis* includes three specimens in the Museum of Zoology, University of Michigan, four specimens listed by Stull (Stull, Olive Griffith. Variations and Relations in the Snakes of the Genus Pituophis. U. S. Nat. Mus., Bull. 175, 1940: 51) and two listed by Smith (Smith, Hobart M. Summary of the Collections of Snakes and Crocodilians Made in Mexico under the Walter Rathbone Bacon Traveling Scholarship. Proc. U. S. Nat. Mus., 93, 1943:460).

respects is in perfect condition. The snake obviously must be assigned to some genus in the *Rhadinaea* complex. Dr. E. R. Dunn suggests that it might well be allocated to *Trimetopon* and I concur with this opinion. I have already expressed[18] my misgivings as to the validity of this genus but have pointed out my reasons for maintaining its *status quo* for the present. Because of a reduction in maxillary dentition, its single postocular, and its relatively uniform rather than striped pattern, all unusual features in *Rhadinaea* but well known in *Trimetopon*, I assign it to the latter genus. It is herewith named for *don* Antonio and his good wife, *doña* Marta, my hosts at Finca La Gloria.

Trimetopon piloñaorum new species

Holotype.—Museum of Zoology, University of Michigan, No. 102635. A half-grown female collected at Finca La Gloria (about 12 kilometers [straight line] northeast of Chiquimulilla), Department of Santa Rosa, Guatemala at about 950 meters. Collector, unknown; date about July 25, 1949.

Diagnosis.—A *Trimetopon* with eight supralabials, a single postocular, two prefontals, readily distinguishable from all other forms now assigned to the genus by its very high number of ventral scutes (abdominals, 166; subcaudals, 98; total ventrals, 264).

Description of holotype.—A full complement of normal colubrid head shields. Rostral very much broader than high but visible from above. Two small internasals; two large prefontals; frontal longer than broad and longer than its distance from the end of the snout; a small supraocular on either side; parietals very large, longer than their distance from the tip of the snout. Nostril between two nasals; loreal longer than high; a single preocular; a single postocular; temporals, 1-2; eight supralabials, the fourth and fifth entering the eye. Infralabials, ?; four in contact with the anterior chin shields; posterior chin shields apparently present and much smaller than the anterior ones.

Dorsals smooth, in 17 longitudinal rows throughout the length of the body, abdominals, 166; subcaudals, 98; preanal divided. Total length, 310 mm.; tail length, 100 mm.

Maxillary teeth increasing in size posteriorly and apparently without a diastema posteriorly; 10 in number.

Ground color of the upper surface of the head white; all the upper head shields except the internasals with dark brown centers, which color in some instances blends gradually into the light ground color giving each shield the appearance of having a light border. The internasals are darkened on their lateral edges. When viewed *in toto* the surface of the head appears to be white mottled with dark brown. Laterally the supralabials are white with fairly extensive dark posterior borders; the eighth supralabial also has a dark anterior margin which blends with the brown posterior border of the seventh to produce a dark postocular spot. The remaining lateral head shields are white, mottled or flecked with dark brown. A white collar two and one-half scales in width extends across the nape from mouth angle to mouth angle. It is broken middorsally by the dark brown middorsal scale row.

[18]Stuart, L. C. A New *Trimetopon* (Ophidia) from Guatemala. Proc. Biol. Soc. Washington 62, 1949: 165.

Ground color of the body and tail dark brown. The lower half of the lowermost scale row is white, and the center of each of the other scale rows is flecked with white with the exception of the middorsal row which is solid dark brown. This white flecking becomes progressively less intense from scale row two towards the middorsal row. On the anterior part of the body a stripped pattern appears to obtain but this impression of stripping disappears posteriorly. The upper half of scale row three and the lower half of four are somewhat darker than the others, thus producing a barely visible, dark stripe in that region. The underparts are immaculate white except for the lateral edges of the abdominals and subcaudals which are flecked with dark brown, a condition that becomes progressively more intense posteriorly.

Discussion.—On the basis of this single specimen, little can be said concerning its position in the 'genus'' *Trimetopon*. In pattern it most closely resembles *Trimetopon posadasi* Slevin of southwestern Guatemala, while in structural features it appears to be close to *Trimetopon hannsteini* Stuart of the same general region. It is not improbable that, if there is anything in the way of natural groups in the genus (a condition that I seriously doubt), *piloñaorum* may be placed in the *hannsteini-veraepacis-posadasi* chain of northern Central America in much the same way as the southern Central American forms may form the *barbouri-viquezi-slevini* and *gracile-simile* groups.